

REMARKS

Applicants have amended the specification to clarify the meaning of the abbreviations of "NAME" and "NAMEC" per the examiner's suggestions. Applicants have also amended the claims to recite more clearly and distinctly that which they consider their inventions, and respectfully submit that the amendments are fully supported by the originally filed disclosure. For example, support for new claim 27 can be found at the paragraph bridging pages 12 and 13 (a copy of the relevant pages of the Buehringer Mannheim User's Guide is attached Exhibit 1 as well) and for new claim 28 can be found *inter alia* at page 5, lines 6-9.

Compliance with the Sequence Rules

The Office Action states that no statement under 37 C.F.R. § 1.821(f) was found in the file. Applicants indeed have submitted such a statement, and attach hereto a copy of the statement dated April 23, 2003 for the convenience of the examiner, along with a copy of the date-stamped postcard showing receipt of the statement by the Office.

Objections to the Specification and Claims

Applicants respectfully submit that the objection to the specification has been overcome by the amendment above to the description of Figure 3, the objection to Claims 1, 4, 10, and 11 are rendered moot by their cancellation. Furthermore, the objection to Claim 17 has been overcome by its amendment.

Claim Rejections under 35 U.S.C. § 112, ¶ 2

Applicants respectfully submit that the rejections to Claims 1, 3, 7-11 in paragraph 10 of the Office Action have been rendered moot by the cancellation of these claims.

The Office Action rejected Claims 2, 16, and 18-22 for indefiniteness under 35 U.S.C. § 112, ¶ 2, asserting that the term "80% sequence homology" is unclear. Applicants respectfully traverse. First of all, the Office Action is incorrect in stating that the only support for the recitation is in the original claims. Yet the Specification discusses sequence homology at page 5, lines 9-10, and again at page 6, lines 19-10. In any event, a person of ordinary skills in the art of molecular biology understands perfectly that art-recognized and universally accepted methodology (e.g. mathematical or computer algorithms) existed at the

time of the filing of the instant application to define and determine the sequence homology of two polypeptide or polynucleotide sequences. A given percent homology encompasses situations where one sequence is shorter than the other, or the two sequences only share a partially homologous region. For example, the GCG software package discussed in the specification at page 5 provides ways to determine sequence homology in those situations. In other words, the recitation of a sequence having certain percent sequence homology has a well-defined meaning and is not indefinite. Solely in order to expedite prosecution, applicants have amended claim 2, removing the 80% homology recitation. Accordingly, applicants respectfully submit that the claim rejections in paragraph 11 of the Office Action have been overcome.

Applicants have amended relevant claims to remove the recitation of "hybrid compounds." It is respectfully submitted that these amendments merely clarify the meaning of the claims and do not alter the scope of the claims in any way. These amendments also overcome the claim rejections in paragraph 12 of the Office Action.

Claim Rejections under 35 U.S.C. § 112, ¶ 1

Applicants submit that the rejection of claims 1, 3, 7-11 in paragraph 13 of the Office Action have been rendered moot by the cancellation of the claims.

Applicants respectfully traverse the rejection of claims 2, 16, 18-22 for lack of adequate written description because of the recitation of 80% sequence homology. Applicants respectfully submit this rejection is improper because the specification describes the subject matter as claimed in such a way as to reasonably convey to one ordinarily skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention. As indicated above, solely in order to expedite prosecution, applicants have amended claim 2, and added new claim 27 from which claim 2 now depends, removing the 80% homology recitation. Accordingly, applicants respectfully submit that the lack of written description should be withdrawn.

The Office Action also rejected claims 2, 16, 18-22 for lack of enablement, stating that it would require undue experimentation for an ordinarily skilled person to make all or a relevant portion of the claimed genus of polynucleotides. The Office Action takes issue with

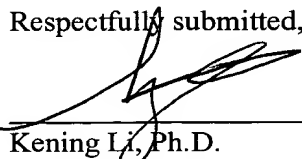
the recitation of a gene cluster for anthracycline biosynthetic pathway. This phrase is no longer used in the amended claims. In comparison, the new claims now recite individual genes encoding individual enzymes of the pathway. The sequences of each of the enzymes are known, and applicants respectfully submit that no undue experimentation is needed for an ordinarily skilled artisan to arrive from this sequence to all sequences having 80% sequence homology. Accordingly, applicants respectfully submit that this rejection has been overcome and should now be withdrawn.

Finally, the Office Action rejected claims 7, 8, 10, 11, 18, 19, 21 and 22 for lack of enablement, because the rejected claims recite all *Streptomyces* hosts, rather than a *Streptomyces* host that naturally produce anthracyclines. Applicants respectfully traverse. The Office Action reasoned that it is not clear whether SEQ ID NO: 1 contains the entire gene cluster necessary for anthracycline biosynthesis. Applicants respectfully submit that this reasoning is flawed. A *Streptomyces* host may lack only one of the genes in the gene cluster, and introduction of this gene to the host will enable it to synthesize anthracycline. In any event, the legal standard for enablement analysis is whether a skilled artisan would have to engage in undue experimentation to practice the claimed invention. Applicants submit that only routine experimentation is needed for anyone to screen a *Streptomyces* host and determine if it is suitable for the claimed process. On the other hand, it is unjust to limit the scope of applicants invention to natural anthracycline-producing *Streptomyces* hosts, because the specification has indeed disclosed that a strain that naturally does not produce anthracycline (*S. lividans* strain TK24, see e.g. Example 1) can be transformed and converted into a producer. Accordingly, applicants respectfully request that this rejection be withdrawn.

In conclusion, applicants respectfully submit that all claims are now in condition for allowance and solicit an early indication from the Examiner to that effect. If there are any questions regarding this response or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (CAM #: 029381.49849US).

Respectfully submitted,



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